(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 19 January 2006 (19.01.2006)

PCT

(10) International Publication Number $WO\ 2006/007289\ A1$

(51) International Patent Classification: Not classified

(21) International Application Number:

PCT/US2005/019810

(22) International Filing Date: 3 June 2005 (03.06.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: 60/581,967 22 Jun

22 June 2004 (22.06.2004) US

- (71) Applicant (for all designated States except US): MALLINCKRODT INC. [US/US]; 675 McDonnell Boulevard, P.O. Box 5840, St. Louis, MO 63134 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): JARVI, Esa, T. [US/US]; 1703 Warmington Court, Ballwin, MO 63021 (US). MILLER, Douglas, C. [US/US]; 439 North Hanley Road, University City, MO 63130 (US). MOSER, Frank, W. [US/US]; 3896 Petrified Forest Drive, Arnold, MO 63010 (US). HALVACHS, Robert, E. [US/US]; 309 Fredericksburg Drive, Belleville, IL 62223 (US).
- (74) Agents: REBMAN, Christine, M. et al.; Mallinckrodt Inc., 675 McDonnell Boulevard, P.O. Box 5840, St. Louis, Missouri 63134 (US).

- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

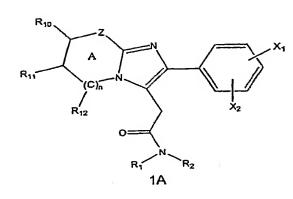
Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SYNTHESIS OF HETEROARYL ACETAMIDES FROM REACTION MIXTURES HAVING REDUCED WATER CONTENT

$$R_{11}$$
 R_{12}
 OH
 X_2
 R_1
 R_2
 R_1



(57) Abstract: An improved process for the preparation of a heteroaryl acetamide from a heteroaryl α -hydroxyacetamide is provided. The process comprises directly hydrogenating the heteroaryl α -hydroxyacetamide in the presence of a strong acid, a halide and a catalyst wherein the molar ratio of the starting heteroaryl α -hydroxyacetamide to water at the initiation of hydrogenolysis is at least about 2:1. In one embodiment, the heteroaryl acetamide is zolpidem and the heteroaryl α -hydroxyacetamide is α -hydroxyacetamide. Formulae (1) and (1A).